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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,208	01/03/2006	Hiroyuki Matsuura	33082M297	8170

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SMITH, GAMBRELL & RUSSELL
1130 CONNECTICUT AVENUE, N.W., SUITE 1130
WASHINGTON, DC 20036

EXAMINER

PILLING, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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4118

MAIL DATE	DELIVERY MODE
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01/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,208	Applicant(s) MATSUURA, HIROYUKI	
	Examiner CHRISTOPHER PILLING	Art Unit 4118	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/03/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/03/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/03/2006, 09/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

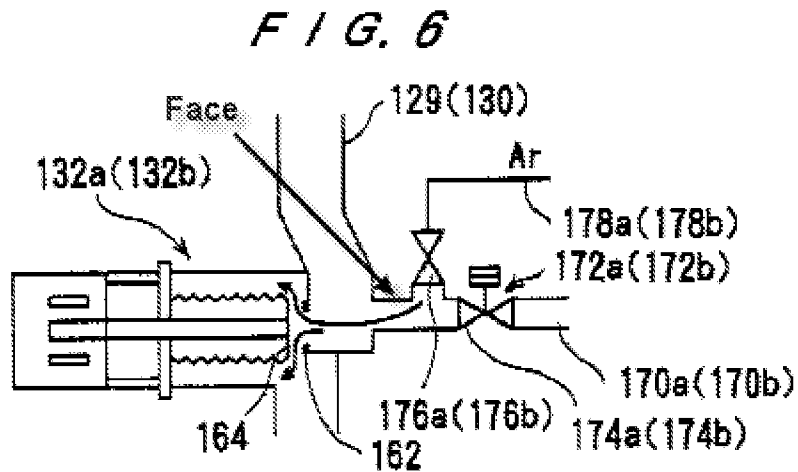
2. Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Horie (US 5,950,646).

3. Regarding claim 9, Horie discloses a pressure control valve 132a (Fig 6), for installation in a gas passage to which a solid matter possibly adheres (Col 11, lines 39-42), configured to perform a pressure control operation by adjusting a gap between a valving element 164 (Fig 6) and a valve seat 162 (Fig 6); comprising at least one purge gas supply port 176a (Fig 6) opening into a gap between the valving element 164 (Fig 6) and the valve seat 162 (Fig 6); and a purge gas supply passage 178 (Fig 6) through which a purge gas (Col 11, line 40) is supplied to the purge gas supply port 176a (Fig 6).

4. Regarding claim 10, Horie discloses at least one purge gas supply port includes a first purge gas supply port 176a (Fig 6) opening into an area beside a face “face” (see Fig 6 below), to be in contact with the valving element 164 (Fig 6), of the valve seat 162 (Fig 6), and a second purge gas supply port 176b (Fig 6) opening into an area beside a face “face” (see Fig 6 below), to be in contact with the valve seat 162 (Fig 6), of the

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valving element 164 (Fig 6).



Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki (JP 08-285132) in view of Horie (US 5,950,646).

7. Regarding claim 1, Masayuki discloses a low pressure processing system comprising: an exhaust passage 35 (Fig 1) connected to a reaction vessel "Vacuum chamber" (see abstract), and a gate valve 32 (Fig 1) that hermetically closes the exhaust passage 35 (Fig 1) by pressing a valving element 14 (Fig 1) against a valve seat 25 (Fig 1) to contact the same, said apparatus being adapted to process a

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substrate contained in the reaction vessel "Vacuum chamber" (see abstract) by a predetermined treatment by supplying a process gas into an interior of the reaction vessel while maintaining an atmosphere of a reduced pressure in the interior of the reaction vessel " when reaction gas is supplied to the vacuum chamber, vacuum pressure in the vacuum chamber is adjusted" (see abstract) by evacuating the same through the exhaust passage 35 (Fig 1), except for said system further comprising: at least one purge gas supply port opening into a gap between the valving element and the valve seat; and purge gas supply passage through which a purge gas is supplied to the purge gas supply port. Horie teaches, at least one purge gas supply port 176a (Fig 6) opening into a gap between the valving element 164 (Fig 6) and the valve seat 162 (Fig 6); and purge gas supply passage 178a (Fig 6) through which a purge gas is supplied to the purge gas supply port 176a (Fig 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device in Masayuki to include a purge gas supply port and passage, as taught and suggested by Horie, for the purpose of allowing heated purge gas to be injected to remove adhering matters from the valve seat and valve elements (Col 11, lines 39-42).

8. Regarding claim 2, Masayuki discloses all the claimed features except for, wherein said at least one purge gas supply port includes a first purge gas supply port opening into an area beside a face, to be in contact with the valving element, of the valve seat, and a second purge gas supply port opening into an area beside a face, to be in contact with the valve seat, of the valving element .Horie teaches, wherein said at least one purge gas supply port includes a first purge gas supply port 176a (Fig 6)

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opening into an area beside a face “face” (see Fig 6 above), to be in contact with the valving element 164 (Fig 6), of the valve seat 162 (Fig 6), and a second purge gas supply port 176b (Fig 6) opening into an area beside a face “face” (see Fig 6 above), to be in contact with the valve seat 162 (Fig 6), of the valving element 164 (Fig 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device in Masayuki to include a purge gas supply port, as taught and suggested by Horie, for the purpose of allowing heated purge gas to be injected to remove adhering matters from the valve seat and valve elements (Col 11, lines 39-42).

9. Regarding claim 3, Masayuki discloses all the claimed features including wherein the valve seat 25 (Fig 1) has a ring shape “circular valve seat” (Par 0006), except for, wherein at least one purge gas supply port includes a plurality of purge gas supply port arranged circumferentially. Horie teaches wherein at least one purge gas supply port includes a plurality of purge gas supply ports 176a/176b (Fig 6), except for arranged circumferentially. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the purge gas supply ports circumferentially, for the purpose of injecting more heated purge gas at circumferential angles to remove adhering matters from the valve seat and valve elements, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

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10. Regarding claim 5, Masayuki discloses wherein the gate valve is configured so that a size the gap can be adjusted to control pressure in the reaction vessel "The valve element 14 which adjusts to the vacuum pressure in a vacuum chamber by moving to the valve seat 25 and changing a crevice (gap)" (Par 0025).

11. Regarding claim 6, Masayuki wherein the process gas is such that a reaction product of the process gas is unavoidably deposited on an inner surface "TEOS with high maximum vapor tension (ethyl ortho silicate)" (Par 0010) of the exhaust passage 35 (Fig 1) even if the exhaust passage is heated.

12. Regarding claim 7, Masayuki discloses a low pressure processing method of performing a low pressure process by using a low pressure processing system comprising an exhaust passage 35 (Fig 1) connected to a reaction vessel "Vacuum chamber" (see abstract), and a gate valve 32 (Fig 1) that hermetically closes the exhaust passage 35 (Fig 1) by pressing a valving element 14 (Fig 1) against a valve seat 25 (Fig 1) to contact the same, said method comprising: supplying a process gas into an interior of the reaction vessel while maintaining an atmosphere of a reduced pressure in the interior of the reaction vessel " when reaction gas is supplied to the vacuum chamber, vacuum pressure in the vacuum chamber is adjusted" (see abstract) by evacuating the same through the exhaust passage 35 (Fig 1), thereby processing a substrate contained in the reaction vessel by a predetermined treatment, except for, supplying a purge gas, from at least one purge gas supply port opening into a gap between the valving element and the valve seat of the gate valve, into the gap. Horie teaches, supplying a purge gas (Col 11, line 40), at least one purge gas supply port

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176a (Fig 6) opening into a gap between the valving element 164 (Fig 6) and the valve seat 162 (Fig 6); Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device in Masayuki to include a purge gas supply port, as taught and suggested by Horie, for the purpose of allowing heated purge gas to be injected to remove adhering matters from the valve seat and valve elements (Col 11, lines 39-42).

13. Regarding claim 8, Masayuki discloses all the claimed features except for, wherein the supplying of the purge gas includes supplying the purge gas from a first gas supply port along a face, to be in contact with the valving element, of the valve seat, and supplying the purge gas from a second gas supply port along a face, to be in contact with the valve seat, of the valving element .Horie teaches, wherein the supplying of the purge gas (Col 11, line 40) includes supplying the purge gas from a first gas supply port 176a (Fig 6) along a face, "face" (see Fig 6 above), to be in contact with the valving element 164 (Fig 6), of the valve seat 162 (Fig 6), and supplying the purge gas from a second purge gas supply port 176b (Fig 6) along a face "face" (see Fig 6 above), to be in contact with the valve seat 162 (Fig 6), of the valving element 164 (Fig 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device in Masayuki to include a purge gas supply port, as taught and suggested by Horie, for the purpose of allowing heated purge gas to be injected to remove adhering matters from the valve seat and valve elements (Col 11, lines 39-42).

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14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki (JP 08-285132) in view of Horie (US 5,950,646) as applied to claim 1 above, and further in view of Williams (US 4,554,942).

15. Regarding claim 4, Masayuki and Horie disclose all the claimed features including a purge gas valve 176a (Fig 6, Horie) arranged in the purge gas supply passage 178a (Fig 6, Horie) to supply and stop supplying the purge gas, except for, a controller configured to control the valve so that the purge gas valve is opened to supply the purge gas when the interior of the reaction vessel is supplied with the process gas. Williams teaches, "valve controller used to control the opening and closing of valves" (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device in Masayuki and Horie to include a controller as taught and suggested by Williams for the purpose of allowing the valve operator to safely operate the valve (Col 1, lines 28-31).

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US 5,950,646).

17. Regarding claim 11, Horie discloses the valve seat 162 (Fig 11) and at least one purge gas supply port includes a plurality of purge gas supply ports 176a/176b (Fig 6), except for, wherein the valve seat has a ring shape and the purge gas supply ports are arranged circumferentially. It would have been an obvious matter of design choice to make the valve seat ring shape, for the purpose of providing a seat for the valve element, since such a modification would have involved a mere change in the form or shape of a component. A change in form or shape is generally recognized as being

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within the level of ordinary skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976). It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the purge gas supply ports circumferentially, for the purpose of injecting more heated purge gas (cleaning fluid) at circumferential angles to remove adhering matters from the valve seat and valve elements, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER PILLING whose telephone number is (571)270-7825. The examiner can normally be reached on Monday - Friday, 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quang Thanh can be reached on (571)272-4982. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. P./
Examiner, Art Unit 4118

/Quang D. Thanh/
Supervisory Patent Examiner,
Art Unit 4118

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